SEQUENCE LISTING

<110> BLANC, Veronique

THIBAUT, Denis

BAMAS-JACQUES, Nathalie

BLANCHE, Francis

COUZET, Joel

BARRIERE, Jean-Claude

DEBUSSCHE, Laurent

FAMECHON, Alain

PARIS, Jean-Marc

DUTRUC-ROSSET, Gilles

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<141> 1997-03-20

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35 40 45

Arg Val Val Ala Gly Asp Val Arg Arg Pro Gly Pro Glu Ala Val Ala
50 55 60

Ala Leu Ala Ala Ala Asp Val Val Val Leu Ala Val Pro Glu Pro Val
65 70 75 80

Ala Trp Glu Ala Val Glu Val Leu Ala Gly Val Met Arg Pro Gly Ala
85 90 95

Val Leu Ala Asp Thr Leu Ser Val Lys Ser Arg Ile Ala Gly Arg Leu
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Arg Glu Ala Ala Pro Gly Leu Gln Ala Val Gly Leu Asn Pro Met Phe
115 120 125

Ala Pro Ser Leu Gly Leu Gln Gly Arg Pro Val Ala Ala Val Val Val
130 135 140

Thr Asp Gly Pro Gly Val Arg Ala Leu Val Glu Leu Val Ala Gly Trp
145 150 155 160

Gly Ala Arg Val Val Glu Met Pro Ala Arg Arg His Asp Glu Leu Thr
165 170 175

Ala Ala Gln Gln Ala Ala Thr His Ala Ala Val Leu Ala Phe Gly Leu
180 185 190

Gly Leu Gly Glu Leu Ser Val Asp Val Gly Ala Leu Arg Asp Ser Ala
195 200 205

Pro Pro Pro His Leu Ala Met Leu Ala Leu Leu Ala Arg Ile Ala Gly
210 215 220

Gly Thr Pro Glu Val Tyr Phe Asp Ile Gln Ala Ala Asn Pro Gly Ala
225 230 235 240

Pro Ala Ala Arg Gln Ala Leu Gly Arg Gly Leu Val Arg Leu Gly Gln
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Ala Val Glu Arg Gly Asp Glu Glu Thr Phe Ala Ala Leu Phe Ala Glu
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Asp Ala Ala Leu Leu Asp Ala Val Arg Thr Arg Leu Asp Ile Cys Leu
35 40 45

Arg Ile Gly Glu Tyr Lys Arg Leu His Gln Val Pro Met Met Gln Pro
50 55 60

His Arg Ile Ala Gln Val His Ala Asn Ala Ala Arg Tyr Ala Ala Asp
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His Gly Ile Asp Pro Ala Phe Leu Arg Thr Leu Tyr Asp Thr Ile Ile
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Thr Glu Thr Cys Arg Leu Glu Asp Glu Trp Ile Ala Ser Gly Gly Ala
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35 40 45

Arg Gly Gly Leu Glu Arg Ser Glu Pro Val Pro Gly Ile Trp Glu Trp
50 55 60

Met Pro His Arg Glu Pro Gly Asp His Ile Thr Leu Lys Thr Val Gly
65 70 75 80

Tyr Ser Pro Ala Asn Pro Gly Arg Phe Gly Leu Pro Thr Ile Leu Gly
85 90 95

Thr Val Ala Arg Tyr Asp Asp Thr Thr Gly Ala Leu Thr Ala Leu Met
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Asp Gly Val Leu Leu Thr Ala Leu Arg Thr Gly Ala Ala Ser Ala Val
115 120 125

Ala Ser Arg Leu Leu Ala Arg Pro Asp Ser His Thr Leu Gly Leu Ile
130 135 140

Gly Thr Gly Ala Gln Ala Val Thr Gln Leu His Ala Leu Ser Leu Val
145 150 155 160

Leu Pro Leu Gln Arg Ala Leu Val Trp Asp Thr Asp Pro Ala His Arg
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Glu Ser Phe Ala Arg Arg Ala Ala Phe Thr Gly Val Ser Val Glu Ile
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Ala Glu Pro Ala Arg Ile Ala Ala Glu Ala Asp Val Ile Ser Thr Ala
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Thr Ser Val Ala Val Gly Gln Gly Pro Val Leu Pro Asp Thr Gly Val
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Arg Glu His Leu His Ile Asn Ala Val Gly Ala Asp Leu Val Gly Lys
225 230 235 240

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His Pro Glu Gln Ala Leu Arg Glu Gly Glu Cys Gln Gln Leu Ser Ala
260 265 270

Asp Arg Leu Gly Pro Gln Leu Ala His Leu Cys Ala Asp Pro Ala Ala
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Ala Phe Glu Asp Ala Leu Ala Met Glu Val Phe Leu Glu Ala Ala Ala
305 310 315 320

Glu Arg Asp Leu Gly Ile Arg Val Gly Ile Glu His His Pro Gly Asp
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cggccgccga tcaccgtcat ggcccgcgtc accaccaagg acaccgtcct cgccggcacc 900

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gtcttcaccg accccgacca cctcgacctc gcccgcgaag gccgccagat cgccttcggc 1020

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gaagccctct tcgaccgatt ccccgacttc tcgcccaccg acggcgcaaa actgcgctac 1140

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<210> 10

<211> 399

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 10

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1 5 10 15

Leu Ala Trp Leu Arg Glu Met Arg His His His Pro Val His Glu Asp
20 25 30

Glu Tyr Gly Ala Phe His Val Phe Arg His Ala Asp Val Leu Thr Val
35 40 45

Ala Ser Asp Pro Gly Val Tyr Ser Ser Gln Leu Ser Arg Leu Arg Pro
50 55 60

Gly Ser Gln Ala Leu Ser Glu Gln Ile Leu Ser Val Ile Asp Pro Pro
65 70 75 80

Met His Arg Thr Leu Arg Arg Leu Val Ser Gln Ala Phe Thr Pro Arg
85 90 95

Thr Val Ala Asp Leu Glu Pro Arg Val Thr Glu Leu Ala Gly Gln Leu
100 105 110

Leu Asp Ala Val Asp Gly Asp Thr Phe Asp Leu Val Ala Asp Phe Ala
115 120 125

Tyr Pro Leu Pro Val Ile Val Ile Ala Glu Leu Leu Gly Val Pro Pro
130 135 140

Ala Asp Arg Thr Leu Phe Arg Ser Trp Ser Asp Arg Met Leu Gln Met
145 150 155 160

Gln Val Ala Asp Pro Ala Asp Met Gln Phe Gly Asp Asp Ala Asp Glu
165 170 175

Asp Tyr Gln Arg Leu Val Lys Glu Pro Met Arg Ala Met His Ala Tyr
180 185 190

Leu His Asp His Val Thr Asp Arg Arg Ala Arg Pro Ala Asn Asp Leu
195 200 205

Ile Ser Ala Leu Val Ala Ala Arg Val Glu Gly Glu Arg Leu Thr Asp
210 215 220

Glu Gln Ile Val Glu Phe Gly Ala Leu Leu Leu Met Ala Gly His Val
225 230 235 240

Ser Thr Ser Met Leu Leu Gly Asn Thr Val Leu Cys Leu Lys Asp His
245 250 255

Pro Arg Ala Glu Ala Ala Ala Arg Ala Asp Arg Ser Leu Ile Pro Ala
260 265 270

Leu Ile Glu Glu Val Leu Arg Leu Arg Pro Pro Ile Thr Val Met Ala
275 280 285

Arg Val Thr Thr Lys Asp Thr Val Leu Ala Gly Thr Thr Ile Pro Ala
290 295 300

Gly Arg Met Val Val Pro Ser Leu Leu Ser Ala Asn His Asp Glu Gln
305 310 315 320

Val Phe Thr Asp Pro Asp His Leu Asp Leu Ala Arg Glu Gly Arg Gln
325 330 335

Ile Ala Phe Gly His Gly Ile His Tyr Cys Leu Gly Ala Pro Leu Ala
340 345 350

Arg Leu Glu Gly Arg Ile Ala Leu Glu Ala Leu Phe Asp Arg Phe Pro
355 360 365

Asp Phe Ser Pro Thr Asp Gly Ala Lys Leu Arg Tyr His Arg Asp Gly
370 375 380

Leu Phe Gly Val Lys Asn Leu Pro Leu Thr Val Arg Arg Gly Pro
385 390 395

<210> 11

<211> 1561

<212> DNA

<213> Streptomyces pristinaespiralis

<400> 11

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gccggccacg gcccgaccac ggacggcgat acggccggtg ggggtgggtc cgcgggcggg 180

gtgacggccg ccggtggcgg gcgggaggag gcggcgtgag cgggcccggg cccgagggcg 240

gctaccgggt gccgttcgcg cgacgcggtt cggtggtggg cgaggcggac ctggcggcgc 300

tgggcgaact ggtccgctcg ggccggtcgc tgacgtcggg ggtgtggcgg gagcggttcg 360

aggaacagtt cgcccgcctg accggcgccc ggcacgcgct cagtgtcacc agcggcaccg 420

tcgcgctgga actggcggtg cggatgctgg acctggcgcc gggcgacgag gtgatcgcca 480

ccccgcagac gttccaggcg acggtgcagc cgctgctcga ccacgacgtg cggctgcggt 540

tctgcgacat cgacccggac accctcaacc tcgacccggc ggtgctggag acgctgatca 600

ccgaccgcac ccgggcgatc ctgctcgtcc actacggcgg caacccggcc gacatggacc 660

gcatcatggc cctggcccgc aagcgcggca tcatcgtcgt cgaggacagc gcgcacgcgc 720

tgggcgccgt gtaccggggg cggcggccgg gggcactggc ggacatcggc tgcttcactt 780

tccactccac gaagaacatc accaccctcg gcgagggcgg catgatcacc ctgtcgcgtg 840

acgagtgggc ccagcgggtg ggacgtatcc gcgacaacga ggccgacggc gtgtacgcgg 900

cgctgccgga ctccgcgcgg gcgggtgctc cggcgctgct gccgtggatg aagttcgcgg 960

agggtgtgta cggtcaccgg gcggtcgggg tccgcggggc gggcacgaac gcgacgatgt 1020

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tgcaccgggc ggcggcggac agtctgcacg cctaccacct gtacacgttc ttcctcaccg 1200

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gcgagtgtcc gacggccgaa cgggtctggt tcgaggagca catgaacctg ccgtgccatc 1380

ccggtctgag tgacggccag gtcgactaca tggtcgaggc ggtcacccgc gccctgcacg 1440

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t 1561

<210> 12

<211> 1233

<212> DNA

<213> Streptomyces pristinaespiralis

<400> 12

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ttcgcccgcc tgaccggcgc ccggcacgcg ctcagtgtca ccagcggcac cgtcgcgctg 180

gaactggcgg tgcggatgct ggacctggcg ccgggcgacg aggtgatcgc caccccgcag 240

acgttccagg cgacggtgca gccgctgctc gaccacgacg tgcggctgcg gttctgcgac 300

atcgacccgg acaccctcaa cctcgacccg gcggtgctgg agacgctgat caccgaccgc 360

acccgggcga tcctgctcgt ccactacggc ggcaacccgg ccgacatgga ccgcatcatg 420

gccctggccc gcaagcgcgg catcatcgtc gtcgaggaca gcgcgcacgc gctgggcgcc 480

gtgtaccggg ggcggcggcc gggggcactg gcggacatcg gctgcttcac tttccactcc 540

acgaagaaca tcaccaccct cggcgagggc ggcatgatca ccctgtcgcg tgacgagtgg 600

gcccagcggg tgggacgtat ccgcgacaac gaggccgacg gcgtgtacgc ggcgctgccg 660

gactccgcgc gggcgggtgc tccggcgctg ctgccgtgga tgaagttcgc ggagggtgtg 720

tacggtcacc gggcggtcgg ggtccgcggg gcgggcacga acgcgacgat gtcggaggcg 780

gcggcggcgg tgggcgtggt gcaactggcg tcgctggagc ggttcgtggc ccggcgccgg 840

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caggtgcggg agcggttcgt gcgcgccctg gaccggctgg gtgtggaggt ccagttgcgg 1020

tacttcccgc tccatctgtc gcccgagtgg cggctgcgcg gccacgggcc gggcgagtgt 1080

ccgacggccg aacgggtctg gttcgaggag cacatgaacc tgccgtgcca tcccggtctg 1140

agtgacggcc aggtcgacta catggtcgag gcggtcaccc gcgccctgca cgaggcccac 1200

ggcacgggga cgcgggtggc ggccgggcac ctg 1233

<210> 13

<211> 412

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 13

Val Pro Phe Ala Arg Arg Gly Ser Val Val Gly Glu Ala Asp Leu Ala
1 5 10 15

Ala Leu Gly Glu Leu Val Arg Ser Gly Arg Ser Leu Thr Ser Gly Val
20 25 30

Trp Arg Glu Arg Phe Glu Glu Gln Phe Ala Arg Leu Thr Gly Ala Arg
35 40 45

His Ala Leu Ser Val Thr Ser Gly Thr Val Ala Leu Glu Leu Ala Val
50 55 60

Arg Met Leu Asp Leu Ala Pro Gly Asp Glu Val Ile Ala Thr Pro Gln
65 70 75 80

Thr Phe Gln Ala Thr Val Gln Pro Leu Leu Asp His Asp Val Arg Leu
85 90 95

Arg Phe Cys Asp Ile Asp Pro Asp Thr Leu Asn Leu Asp Pro Ala Val
100 105 110

Leu Glu Thr Leu Ile Thr Asp Arg Thr Arg Ala Ile Leu Leu Val His
115 120 125

Tyr Gly Gly Asn Pro Ala Asp Met Asp Arg Ile Met Ala Leu Ala Arg
130 135 140

Lys Arg Gly Ile Ile Val Val Glu Asp Ser Ala His Ala Leu Gly Ala
145 150 155 160

Val Tyr Arg Gly Arg Arg Pro Gly Ala Leu Ala Asp Ile Gly Cys Phe
165 170 175

Thr Phe His Ser Thr Lys Asn Ile Thr Thr Leu Gly Glu Gly Gly Met
180 185 190

Ile Thr Leu Ser Arg Asp Glu Trp Ala Gln Arg Val Gly Arg Ile Arg
195 200 205

Asp Asn Glu Ala Asp Gly Val Tyr Ala Ala Leu Pro Asp Ser Ala Arg
210 215 220

Ala Gly Ala Pro Ala Leu Leu Pro Trp Met Lys Phe Ala Glu Gly Val
225 230 235 240

Tyr Gly His Arg Ala Val Gly Val Arg Gly Ala Gly Thr Asn Ala Thr
245 250 255

Met Ser Glu Ala Ala Ala Ala Val Gly Val Val Gln Leu Ala Ser Leu
260 265 270

Glu Arg Phe Val Ala Arg Arg Arg Ser Ile Ala Gln Arg Leu Asp Glu
275 280 285

Ala Val Ala Ser Val Ala Gly Thr Arg Leu His Arg Ala Ala Ala Asp
290 295 300

Ser Leu His Ala Tyr His Leu Tyr Thr Phe Phe Leu Thr Gly Gly Arg
305 310 315 320

Gln Val Arg Glu Arg Phe Val Arg Ala Leu Asp Arg Leu Gly Val Glu
325 330 335

Val Gln Leu Arg Tyr Phe Pro Leu His Leu Ser Pro Glu Trp Arg Leu
340 345 350

Arg Gly His Gly Pro Gly Glu Cys Pro Thr Ala Glu Arg Val Trp Phe
355 360 365

Glu Glu His Met Asn Leu Pro Cys His Pro Gly Leu Ser Asp Gly Gln
370 375 380

Val Asp Tyr Met Val Glu Ala Val Thr Arg Ala Leu His Glu Ala His
385 390 395 400

Gly Thr Gly Thr Arg Val Ala Ala Gly His Leu Pro
405 410

<210> 14

<211> 2220

<212> DNA

<213> Streptomyces pristinaespiralis

<400> 14

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cagatgctgg ccgaggtgaa cggcgccgct ccgctcgtcg tccgcaacga cgacaccccgc 180

acctggcagg ccctggcgcc gggcgacttc gacaacgtcg tcgtctcacc cggcccccggc 240

caccccgcca ccgacaccga cctgggcctc agccgccggg tgatcaccga atgggacctg 300

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cacggccacc ggatgctcgc caacttccgc gacctgtccc tgcgcgcggc cggccaccgc 660

cccccgcaca ccgaacgcat acccgcaccc gcacccgccc ccgccccgc ccccgcaccg 720

gcaccgcccg cgtccgcgcc ggtgggggag taccggctgc atgtgcgcga ggtcgcctgc 780

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gacctcggcc aggtctgcga catcggctcc gtccacgtac cgggcctgtt cgaggtggag 1800

acctacgcca ccgtccacca gctcgtcagc acggtccgcg gccgcctggc ggccgacgtc 1860

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gtcgccaccg aggaggccgc caccatcggc gtgggcggcg ccgtcgtcgc cctgtccgac 2100

cccgacgacg aggtccgcga aatgctcctc aaggcgcaga ccaccctcgc cgccctgcgc 2160

caggcacacg cgggcgccac cgcctcggac cgtgaactcc tggccggcag cctgcggtga 2220

<210> 15

<211> 719

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 15

Val Arg Thr Val Arg Thr Leu Leu Ile Asp Asn Tyr Asp Ser Phe Thr
1 5 10 15

Tyr Asn Leu Phe Gln Met Leu Ala Glu Val Asn Gly Ala Ala Pro Leu
20 25 30

Val Val Arg Asn Asp Asp Thr Arg Thr Trp Gln Ala Leu Ala Pro Gly
35 40 45

Asp Phe Asp Asn Val Val Val Ser Pro Gly Pro Gly His Pro Ala Thr
50 55 60

Asp Thr Asp Leu Gly Leu Ser Arg Arg Val Ile Thr Glu Trp Asp Leu
65 70 75 80

Pro Leu Leu Gly Val Cys Leu Gly His Gln Ala Leu Cys Leu Leu Ala
85 90 95

Gly Ala Ala Val Val His Ala Pro Glu Pro Phe His Gly Arg Thr Ser
100 105 110

Asp Ile Arg His Asp Gly Gln Gly Leu Phe Ala Asn Ile Pro Ser Pro
115 120 125

Leu Thr Val Val Arg Tyr His Ser Leu Thr Val Arg Gln Leu Pro Ala
130 135 140

Asp Leu Arg Ala Thr Ala His Thr Ala Asp Gly Gln Leu Met Ala Val
145 150 155 160

Ala His Arg His Leu Pro Arg Phe Gly Val Gln Phe His Pro Glu Ser
165 170 175

Ile Ser Ser Glu His Gly His Arg Met Leu Ala Asn Phe Arg Asp Leu
180 185 190

Ser Leu Arg Ala Ala Gly His Arg Pro Pro His Thr Glu Arg Ile Pro
195 200 205

Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Pro Ala
210 215 220

Ser Ala Pro Val Gly Glu Tyr Arg Leu His Val Arg Glu Val Ala Cys
225 230 235 240

Val Pro Asp Ala Asp Ala Ala Phe Thr Ala Leu Phe Ala Asp Ala Pro
245 250 255

Ala Arg Phe Trp Leu Asp Ser Ser Arg Val Glu Pro Gly Leu Ala Arg
260 265 270

Phe Thr Phe Leu Gly Ala Pro Ala Gly Pro Leu Gly Glu Gln Ile Thr
275 280 285

Tyr Asp Val Ala Asp Arg Ala Val Arg Val Lys Asp Gly Ser Gly Gly
290 295 300

Glu Thr Arg Arg Pro Gly Thr Leu Phe Asp His Leu Glu His Glu Leu
305 310 315 320

Ala Ala Arg Ala Leu Pro Ala Thr Gly Leu Pro Phe Glu Phe Asn Leu
325 330 335

Gly Tyr Val Gly Tyr Leu Gly Tyr Glu Thr Lys Ala Asp Ser Gly Gly
340 345 350

Glu Asp Ala His Arg Gly Glu Leu Pro Asp Gly Ala Phe Met Phe Ala
355 360 365

Asp Arg Met Leu Ala Leu Asp His Glu Gln Gly Arg Ala Trp Leu Leu
370 375 380

Ala Leu Ser Ser Thr Arg Arg Pro Ala Thr Ala Pro Ala Ala Glu Arg
385 390 395 400

Trp Leu Thr Asp Ala Ala Arg Thr Leu Ala Thr Thr Ala Pro Arg Pro
405 410 415

Pro Phe Thr Leu Leu Pro Asp Asp Gln Leu Pro Ala Leu Asp Val His
420 425 430

Tyr Arg His Ser Leu Pro Arg Tyr Arg Glu Leu Val Glu Glu Cys Arg
435 440 445

Arg Leu Ile Thr Asp Gly Glu Thr Tyr Glu Val Cys Leu Thr Asn Met
450 455 460

Leu Arg Val Pro Gly Arg Ile Asp Pro Leu Thr Ala Tyr Arg Ala Leu
465 470 475 480

Arg Thr Val Ser Pro Ala Pro Tyr Ala Ala Tyr Leu Gln Phe Pro Gly
485 490 495

Ala Thr Val Leu Ser Ser Ser Pro Glu Arg Phe Leu Arg Ile Gly Ala
500 505 510

Asp Gly Trp Ala Glu Ser Lys Pro Ile Lys Gly Thr Arg Pro Arg Gly
515 520 525

Ala Gly Pro Ala Gln Asp Ala Ala Val Lys Ala Ser Leu Ala Ala Ala
530 535 540

Glu Lys Asp Arg Ser Glu Asn Leu Met Ile Val Asp Leu Val Arg Asn
545 550 555 560

Asp Leu Gly Gln Val Cys Asp Ile Gly Ser Val His Val Pro Gly Leu
565 570 575

Phe Glu Val Glu Thr Tyr Ala Thr Val His Gln Leu Val Ser Thr Val
580 585 590

Arg Gly Arg Leu Ala Ala Asp Val Ser Arg Pro Arg Ala Val Arg Ala
595 600 605

Ala Phe Pro Gly Gly Ser Met Thr Gly Ala Pro Lys Val Arg Thr Met
610 615 620

Gln Phe Ile Asp Arg Leu Glu Lys Gly Pro Arg Gly Val Tyr Ser Gly
625 630 635 640

Ala Leu Gly Tyr Phe Ala Leu Ser Gly Ala Ala Asp Leu Ser Ile Val
645 650 655

Ile Arg Thr Ile Val Ala Thr Glu Glu Ala Ala Thr Ile Gly Val Gly
660 665 670

Gly Ala Val Val Ala Leu Ser Asp Pro Asp Asp Glu Val Arg Glu Met
675 680 685

Leu Leu Lys Ala Gln Thr Thr Leu Ala Ala Leu Arg Gln Ala His Ala
690 695 700

Gly Ala Thr Ala Ser Asp Arg Glu Leu Leu Ala Gly Ser Leu Arg
705 710 715

<210> 16

<211> 962

<212> DNA

<213> Streptomyces pristinaespiralis

<400> 16

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tcttcgtccc caaacccgag accgaggaga tcacccggga cgccatcgcc cgcctggagg 420

ccctcgtccg ccgcggcacc accgcacccc tggtcgtcga cctgtgcgcc ggaccgggca 480

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acccgcccta catccccatc ggactgcgca cctccgcacc cgaagtgctc gagcacgacc 720

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ga 962

<210> 17

<211> 292

<212> PRT

<213> Streptomyces pristinaespiralis

<400> 17

Val Thr Ala Ala Ala Pro Thr Leu Ala Gln Ala Leu Asp Glu Ala Thr
1 5 10 15

Gly Gln Leu Thr Gly Ala Gly Ile Thr Ala Asp Ala Ala Arg Ala Asp
20 25 30

Thr Arg Leu Leu Ala Ala His Ala Cys Gln Val Ala Pro Gly Asp Leu
35 40 45

Asp Thr Cys Leu Ala Gly Pro Val Pro Pro Arg Phe Trp His Tyr Val
50 55 60

Arg Arg Arg Leu Thr Arg Glu Pro Ala Glu Arg Ile Val Gly His Ala
65 70 75 80

Tyr Phe Met Gly His Arg Phe Asp Leu Ala Pro Gly Val Phe Val Pro
85 90 95

Lys Pro Glu Thr Glu Glu Ile Thr Arg Asp Ala Ile Ala Arg Leu Glu
100 105 110

Ala Leu Val Arg Arg Gly Thr Thr Ala Pro Leu Val Val Asp Leu Cys
115 120 125

Ala Gly Pro Gly Thr Met Ala Val Thr Leu Ala Arg His Val Pro Ala
130 135 140

Ala Arg Val Leu Gly Ile Glu Leu Ser Gln Ala Ala Ala Arg Ala Ala
145 150 155 160

Arg Arg Asn Ala Arg Gly Thr Gly Ala Arg Ile Val Gln Gly Asp Ala
165 170 175

Arg Asp Ala Phe Pro Glu Leu Ser Gly Thr Val Asp Leu Val Val Thr
180 185 190

Asn Pro Pro Tyr Ile Pro Ile Gly Leu Arg Thr Ser Ala Pro Glu Val
195 200 205

Leu Glu His Asp Pro Pro Leu Ala Leu Trp Ala Gly Glu Glu Gly Leu
210 215 220

Gly Met Ile Arg Ala Met Glu Arg Thr Ala Ala Arg Leu Leu Ala Pro
225 230 235 240

Gly Gly Val Leu Leu Leu Glu His Gly Ser Tyr Gln Leu Ala Ser Val
245 250 255

Pro Ala Leu Phe Arg Ala Thr Gly Arg Trp Ser His Ala Ser Ser Arg
260 265 270

Pro Thr Cys Asn Asp Gly Cys Leu Thr Ala Val Arg Asn His Thr Cys
275 280 285

Ala Pro Pro Ala
290